

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of claims:**

Claims 1-2 (canceled)

Claim 3 (previously presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

the mounting and scanning means (9-12, 7) comprise translational means (11, 12) for moving the X-ray detector (14) along a straight line segment (8b, 27) or along a curved or circular line segment,

the additional means (13, 15) comprise rotational means (13, 15) for tilting (8c) the X-ray detector (14) in order to maintain a constant aspect ratio of the X-ray detector (14) as

viewed from the X-ray source (2), and

the X-ray detector (14) is a single- or multi-line digital X-ray detector (14);

characterized in that

the translational means (11) is a carriage (11) that is movable in a direction perpendicular to its lateral extension,

the rotational means (13) is a rotatable plate (13) that is mounted on the carriage (11) and receives the X-ray detector (14), and

the rotatable plate (13) is laterally extended for receiving an elongated single-line digital X-ray detector (14) suitable for partial or full body X-ray scanning (8a, 8b, 27).

Claim 4 (previously presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

the mounting and scanning means (9-12, 7) comprise translational means (11, 12) for moving the X-ray detector (14) along a straight line segment (8b, 27) or along a curved or

circular line segment,

the additional means (13, 15) comprise rotational means (13, 15) for tilting (8c) the X-ray detector (14) in order to maintain a constant aspect ratio of the X-ray detector (14) as viewed from the X-ray source (2), and

the X-ray detector (14) is a single- or multi-line digital X-ray detector (14); further comprising

a housing (10) for receiving the translational and rotational means (11,13), which housing (10) can be kept stationary during the scanning movement (8b, 27)

wherein the mounting and scanning means (9-12,7) comprise means (9, 7) for repositioning the housing (10) for different scanning procedures.

Claim 5 (previously presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

characterized by

means for swiveling (8d) the X-ray source (2) and the collimator (3, 3a) in coordination with the scanning movement (8b, 27) and orienting movement (8c) of the X-ray detector (14) and a balanced suspension of the X-ray source (2) and the collimator (3, 3a) for a torque-free swiveling movement (8d).

Claim 6 (currently presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

characterized by

a motor drive unit (15) ~~ad~~ and mechanical coupling means (23) for synchronously driving the scanning movement (8b, 27) and the orienting movement (8c) of the X-ray detector (14) and a translational or swiveling movement (27; 8a, 8d) of the X-ray source (2), wherein the X-ray apparatus has moving parts and sliding clutches are mounted between the at least one motor drive unit (15) and

moving parts (2,3,4,9,10) of the X-ray apparatus (1).

Claim 7 (currently amended): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

comprising additional photographic X-ray imaging means (2, 3, 4) comprising a cassette holder (4) for photographic films, characterized in that

the mounting means (9-11) comprise a housing (10) that receives the X-ray detector (14) and the cassette holder (4) in such a way that the X-ray detector (14) and the photographic film are facing towards different side faces of the housing (10) and

the mounting means (9-11) perform a reorienting movement (8z) of the housing (10) such that either the ~~film-cassette~~ cassette holder (4) or the X-ray detector (14) is positioned for X-ray imaging.

Claim 8 (currently amended): The X-ray apparatus (1) according to claim 7, characterized in that

a) the housing (10) receives the X-ray detector (14) on a front side (24) and the cassette holder (4) on a back side (25) and

the mounting means (9-11) has an axis (z) for rotating the front side (24) or the back side (25) of the housing (10) towards an X-ray source (2).

Claim 9 (previously presented): The X-ray apparatus (1) according to claim 7, characterized in that

the X-ray collimator (3) is removable or a slit (3a) is openable for photographic X-ray imaging and

the X-ray collimator (3) or the slit (3a) is steered automatically, by means selected from the group consisting of a sensor indicating the presence of a photographic film in the cassette holder (4), a switch in the cassette holder (4), a sensor indicating an orientation of the housing (10) for either digital or photographic X-ray imaging, a manual switch and software.

Claims 10-16 (canceled)

Claim 17 (previously presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees

of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

characterized by distance ranges  $900 \text{ mm} < d_1 < 1450 \text{ mm}$ ,  $500 \text{ mm} < d_2 < 900 \text{ mm}$  and  $10 \text{ mm} < d_3 < 200 \text{ mm}$  for full or partial body digital X-ray imaging, where  $d_1$ =distance between the X-ray source (2) and the X-ray detector (14),  $d_2$ =distance between the X-ray collimator slit (3a) and the X-ray detector (14) and  $d_3$ =distance between the patient (5) and the X-ray detector (14).

Claim 18 (previously presented): A digital X-ray scanning apparatus (1) comprising an X-ray source (2), an X-ray collimator (3), an X-ray detector (14), mounting means (9-11) for mounting the X-ray detector (14), scanning means (12, 7) for scanning (8b, 27) the X-ray detector (14) over an area (5), means (16) for digital data acquisition from the X-ray detector (14) and a control unit (2c) for steering the X-ray apparatus (1), wherein

the mounting and scanning means (9-12, 7) comprise additional means (13, 15) for orienting (8c) the X-ray detector (14) in at least one dimension towards the X-ray source (2) during a digital scanning procedure,

wherein an orienting movement (8c) and a scanning movement (8b, 27) are independent degrees of freedom of the X-ray detector (14) and

the X-ray apparatus (1) can steer the orienting movement (8c) of the X-ray detector (14) in coordination with the scanning movement (8b, 27) of the X-ray detector (14);

characterized in that

a supporting arm (9) carries the X-ray source (2), the X-ray collimator (3) and a housing (10) for the detector (14) and

the supporting arm (9) is rotatable and the X-ray source (2) together with the X-ray collimator (3) and the housing (10) for the detector (14) are tiltable with respect to the supporting arm (9) in order to position the X-ray source (2), the X-ray collimator (3) and the detector (14) for X-raying a standing, sitting or lying patient (5).

Claim 19 (currently amended): The X-ray apparatus (1) according to claim 18, characterized in that the X-ray source (2) ~~and/or~~ or the housing (10) for the X-ray detector (14) ~~are~~ is movable along the supporting arm (9) for selecting a distance  $d_1$  between the X-ray source (2) and the X-ray detector (14) or a photographic film in a cassette holder (4) contained in the housing (10).

Claim 20 (previously amended): The X-ray apparatus (1) according to claim 18, characterized in that

the supporting arm (9) has a suspension that is movable horizontally (27) for X-raying a lying patient,

the supporting arm (9) has a suspension that is movable vertically (27) for X-raying a standing or sitting patient, and

the supporting arm (9) is rotatable by at least  $90^\circ$  in order to switch between X-raying a standing or sitting and a lying patient (5).

Claim 21 (canceled):